

HEALTH CONDITIONS › INFECTIOUS DISEASES › COVID-19 (CORONAVIRUS)

What Repeat COVID Infections Do to Your Body, According to Science

SARS-CoV-2 behaves differently than a common cold or flu virus—and can do major long-term damage.

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These days, it's tempting to compare **COVID-19** with the common cold or flu. It can similarly leave you with a nasty cough, fever, sore throat—the full works of respiratory symptoms. And it's also become a part of the societal fabric, perhaps something you've resigned yourself to catching at least a few times in your life (even if you haven't already). But let's not forget: SARS-CoV-2 (the virus responsible for COVID) is still relatively new, and researchers are actively investigating the toll of reinfection on the body. While there are still a lot of unknowns, one thing seems to be increasingly true: Getting COVID again and again is a good deal riskier than repeat hits of its seasonal counterparts.

It turns out, SARS-CoV-2 is more nefarious than these other contagious bugs, and our immune response to it, often larger and longer-lasting. COVID has a better ability to camouflage itself in the body, “and it has the keys to the kingdom in the sense that it can unlock any cell and get in,” says **Esther Melamed, PhD**, an assistant professor in the department of neurology at Dell Medical School, University of Texas Austin, and the research director of the Post-COVID-19 program at UT Health Austin. That's because SARS-CoV-2 binds to ACE2 receptors, which exist in cells *all over* your body, from your heart to your gut to your brain. (By contrast, cold and flu viruses replicate mostly in your respiratory tract.)

It only follows that a bigger threat can trigger an outsize immune response. In some people, the body's reaction to COVID can turn into a “cytokine storm,” Dr. Melamed tells SELF, which is characterized by an excessive release of inflammatory proteins that can wreak havoc on multiple organ systems—not a common scenario for your garden-variety cold or flu. But even a “mild” case of COVID can throw your **immune system** into a tizzy as it works to quickly shore up your defenses. And each reinfection is a fresh opportunity for the virus to win the battle.

While you develop some immunity after a COVID infection, it doesn't just grow with each additional hit.

You might be thinking, “Aren’t I *more* protected against COVID and less likely to have a serious case after having been infected?” Part of that is true, to an extent. In the first couple years after COVID burst onto the scene, reinfections were generally (though not always) milder than a person’s initial bout of the virus. “The way we understand classic immunology is that your body will say to a virus [it’s seen before], ‘Oh, I know how to deal with you, and I’m now going to deal with you in a better way the second time around,’” says [Ziyad Al-Aly, PhD](#), a clinical epidemiologist at Washington University in St. Louis School of Medicine and the chief of research and development at the Veterans Affairs St. Louis Health Care System.

But *any encounter with COVID* can also cause your immune system to “go awry or develop some form of dysfunction,” Dr. Al-Aly tells SELF. Specifically, “immune imprinting” can happen, where, upon a second (or third or fourth) exposure to the virus, your immune cells launch the same response as they did for the initial infection, in turn blocking or limiting the development of *new* antibodies necessary to fight off the current variant that’s stirring up trouble. So, “when you get hit an [additional] time, your immune system may not behave classically,” Dr. Al-Aly says, and could struggle with mounting a good defense.

Pair that dip in immune efficiency with the fact that your antibody levels also wane with time post-infection, and it’s easy to see how another hit can rock your body in a new way. Indeed, the more time that passes after any given COVID infection, the less of a “competitive advantage” you’ll have against any future one, [Richard Moffitt, PhD](#), an associate professor at Emory University, in Atlanta, tells SELF. His *research* found that, while people who got sick initially during the delta phase were less likely to get reinfected during the first omicron wave (as compared to folks who were infected in a prior period), that benefit leveled off with following omicron variants.

There’s also the fact that no matter how your immune system has responded to a prior strain (or strains!) of the virus, it could react differently to a new mutation. “We tend to think of COVID as one homogeneous thing, but it’s really not,” Dr. Al-Aly says. So even if your body successfully thwarted one of these intruders in the past, there’s no guarantee it’ll do the same for another, now or in the future, he says.

Getting COVID again and again is especially risky if it previously made you very ill.

Dr. Moffitt's study above also found that the "severity of your first infection is very predictive of the severity of a reinfection," he says. Meaning, you're more likely to have a severe case of COVID—for instance, requiring hospitalization or intensive care, such as ventilation—when reinfected if you had a rough go of it the first time around.

It's possible that some folks are more prone to an off-kilter immune response to the virus, which could then happen consistently with reinfections. The antibodies created in people who've had severe cases "may not function as well as those in folks who've had mild infections or were able to fight the virus off," Dr. Melamed says. Though researchers don't fully understand why, some people's immune systems are also more likely to overreact to COVID (remember the cytokine storm?), which can cause serious symptoms—like fluid in the lungs and **shortness of breath**—whenever they're infected.

Being over the age of 65, having a chronic illness or other medical condition, and lacking access to health care have all been shown to spike your risk of serious outcomes with a COVID infection, whether it's your first or fifth fight with the virus.

But you're not home free if you've only had, say, a brief fever or cough with COVID in the past; Dr. Moffitt points out that a small subset of people in his research who had minor reactions with their initial infection went on to be hospitalized with a repeat hit. The probability of that might be lower, but it's still a possibility, he says.

Even if you've only had "mild" cases, each reinfection strains your body, upping your chances of developing long COVID.

A **2022 study** led by Dr. Al-Aly found that **COVID reinfections** also increase your risk of complications across the board, regardless of whether you recovered just fine in the past or got vaccinated. In particular, it showed that reinfection raises the likelihood that you'll need hospitalization; have heart or lung problems; or experience, among other possible issues, GI, neurological, **mental health**, or musculoskeletal symptoms. "We use the term 'cumulative effects,'" Dr. Al-Aly says, "so, multiple hits accrue and then leave the body more vulnerable to all the potential **long-term health effects** of COVID."

That doesn't mean your experience of a second (or third or fourth) infection will necessarily be worse, in and of itself, than what you felt during a prior case. But with each new hit, a fresh batch of the virus seeps into your system, where, even if you have a

mild case, it has another chance to trigger any of the longer-term complications above. While the likelihood of getting **long COVID** (a constellation of symptoms lingering for three months or longer post-infection) is likely greatest after *initial* infection, “The bottom line is, people are still getting diagnosed with long COVID after reinfection,” Dr. Moffitt says.

Researchers don’t totally know why one person might deal with lasting health effects over another, but it seems that, in some folks, the immune system misfires, generating not only antibodies to attack the virus but also autoantibodies that go after the body’s *own* healthy cells, Dr. Al-Aly says. This may be one reason why COVID has been **linked** to the onset of autoimmune conditions like psoriasis and rheumatoid arthritis.

A different **hypothesis** suggests that pieces of the virus could linger in the body, even after a person has seemingly “recovered” (reminder that SARS-CoV-2 is scarily good at weaseling its way into all sorts of cells). “Maybe the first time, your immune system was able to fully clear it, but the second time, it found a way to hang around,” Dr. Al-Aly posits. And a third **theory** involves your gut microbiome, the community of microbes in your GI tract, including beneficial bacteria. It’s conceivable that “when we get sick with COVID, these bacteria do, too, and perhaps they recover [on initial infection], but not on the second or third hit,” he says, throwing off your balance of good-to-bad gut bugs (which can impact your health in all sorts of ways).

Another unnerving possibility: The shock to your system triggered by COVID may “wake up” a latent (a.k.a. dormant) virus or two lurking in your body, Dr. Melamed says. We all carry anywhere from eight to 12 of these undetected bugs at a time—things like Epstein-Barr, varicella-zoster (which causes chickenpox and shingles), and herpes simplex. And **research** suggests their reactivation could be a contributing factor in long COVID. Separately, the systemic inflammation often created by COVID may spark the onset of high blood pressure and increased clotting (which can up your risk of stroke and pulmonary embolism), as well as type 2 diabetes, Dr. Melamed says.

There’s no guarantee that any given COVID infection snowballs into something debilitating, but each hit is like another round of Russian roulette, Dr. Al-Aly says. From a sheer numbers standpoint, the more times you play a game with the possibility of a negative outcome, the greater your chances are of that bad result occurring. And because every COVID case has at least some potential to leave you very ill or dealing with a host of persistent symptoms, why take the risk *any* more times than you need to?

Bottom line: You should do your best to avoid COVID reinfection and bolster your defenses against the virus.

At this stage of the pandemic's progression, it's not realistic to suggest you can avoid *any* exposure to the virus, given that societal protections against its spread have been rolled back. But what you should do is take some common-sense precautions, which can help you avoid *any* contagious respiratory virus. (A cold or the flu may not pose as many potential health risks as COVID, but being sick is still not fun!)

It's a good idea to **wear a mask** when you're in a crowded environment (especially indoors), choose well-ventilated or outdoor spaces for group hangouts, and **test for COVID** if you have cold or flu-like symptoms, Dr. Al-Aly says. If you do get infected, talk to your doctor about whether your personal risk of a severe case is enough to **qualify** for a Paxlovid prescription (which you need to take within the first five days of symptoms for it to be effective).

The other important thing you should do is get the **updated COVID vaccine** (the 2024-2025 formula was recently approved and released). Unlike getting reinfected, the vaccine triggers "a very targeted immune response...because it's [made with] a specific tiny part of the virus," Dr. Melamed says. Meaning, you get the immune benefit of a little exposure without the potential of your whole system going haywire. Getting the current shot also ensures you restore any protection that has waned since you received a prior jab and that you have an effective shield against the dominant circulating strains. Plus, **research** shows that being vaccinated doesn't just lower your chances of catching the virus; it also reduces your risk of having a severe case or winding up with long COVID if you do get it.

So, too, can the deceptively simple act of keeping up with healthy habits—like **exercising regularly, eating nutritious foods, and clocking quality sleep**. Maintaining this kind of lifestyle can help you stave off other health issues that could increase your risk of harm from COVID, **Harlan Krumholz, PhD**, a cardiologist at Yale University and founder of the Yale Center for Outcomes Research and Evaluation (CORE), tells SELF. "Given that we will be repetitively exposed to the virus, the best investments we can make are in our baseline health," he says.

Doing any (or all!) of the above is a big act of compassion for yourself, the people you love, and your greater community. "For the average person, it's like, 'Oh, COVID is gone,' but they're just not seeing the impact," Dr. Al-Aly says, noting the invisibility of long

COVID symptoms like disorienting brain fog and crushing fatigue. The truth is, in plenty of people, just one more infection could be the difference between living their best life and facing a devastating chronic condition.

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